

# Women Walking through Plans : Technology, democracy and gender identity

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# Women Walking through Plans

## Technology, Democracy, and Gender Identity

**WIEBE E. BIJKER and KARIN BIJSTERVELD**

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"Every house plan I will continue to see as a VAC woman: walking through a plan, in my mind slamming doors and placing cupboards, figuring out where and how I would sleep, wash, cook, relax, and play with children in this situation." So wrote the outgoing chairwoman of one of the Netherlands' Vrouwen Adviescommissies voor de Woningbouw (Women's Advisory Committees on Housing, VACs) in her farewell statement.<sup>1</sup> The quotation captures many ideas that fascinate us: female self-identity, expertise in reading plans, a focus on practical household problems. How did the women of the advisory committees contribute to shaping living space in the Netherlands? This history of women's participation in public housing in the Netherlands is empirically rather modest, but we hope to show its theoretical and political relevance to a variety of issues.

One basic question relates to the political relevance of the history of technology. The thrust of the constructivist research program in the history and sociology of technology has been to identify processes of the mutual shaping of society and technology, rather than to explain the social shaping

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1. Anneke Swinkels-Franken, preface to the 1993 annual report of the VAC-Maastricht, 2. Unless otherwise noted, all translations are the authors'.

of technology and the technical building of society as the result of the conscious strategies of various actors.<sup>2</sup> This article will begin to address the issue of strategies for changing our technological culture, and thus will focus on normative choice. All sorts of social groups continuously try to shape society and technology, from advertising tycoons to managers, from politicians to environmental action groups. Here we will focus on what are often called "nonexpert groups." How do citizens influence the technological building of society? More specifically, we will concentrate on women and their relation to public housing, architecture, and city planning. Considerable attention has been given to the role of women in planning and housing, but we hope that our particular perspective of constructivist technology studies can add something new.<sup>3</sup>

2. In our experience—teaching undergraduates, for example—this is always a difficult point. Often the social constructivist perspective on analyzing technology is erroneously interpreted as a kind of "conspiracy" explanation. On the constructivist research program, see, for example, W. E. Bijker, T. P. Hughes, and T. Pinch, eds., *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology* (Cambridge, Mass., 1987), and W. E. Bijker and J. Law, eds., *Shaping Technology/Building Society: Studies in Sociotechnical Change* (Cambridge, Mass., 1992).

3. The works of Dolores Hayden, grand dame of feminist housing studies, touch on public housing and private life, aspects of household technology, gender roles in the household and family, women architects, city planning, street security, politics, and the relation between communitarian socialism and feminism: see *Seven American Utopias: The Architecture of Communitarian Socialism, 1790–1975* (Cambridge, Mass., 1976); *The Grand Domestic Revolution: A History of Feminist Designs for American Homes, Neighborhoods, and Cities* (Cambridge, Mass., 1981); *Redesigning the American Dream: The Future of Housing, Work, and Family Life* (New York, 1984); *The Power of Place: Urban Landscapes as Public History* (Cambridge, Mass., 1995). The women architects of the feminist designers' collective MATRIX write in a more activist style, and their small book *Making Space: Women and the Man-Made Environment* (London, 1984) is a valuable combination of analysis and practical advice about both housing and urban planning issues. A similar role is played in Germany by the Feministische Organisation von Planerinnen und Architectinnen (FOPA), which has published a volume of case studies of social and ecological urban innovation projects: B. Karhoff, R. Ring, and H. Steinmaier, *Frauen verändern ihre Stadt: Selbstorganisierte Projekte der sozialen und ökologischen Stadterneuerung—Vom Frauenstadthaus bis zur Umplanung einer Großsiedlung* (Dortmund, 1993). See also S. Torre, ed., *Women in American Architecture: A Historic and Contemporary Perspective* (New York, 1977); E. Wilson, *The Sphinx in the City* (London, 1991); R. Gilroy and R. Woods, eds., *Housing Women* (London, 1994); C. H. Greed, *Women and Planning: Creating Gendered Realities* (London, 1994), which includes a comprehensive bibliography; and J. F. Sprague, *More than Housing: Lifeboats for Women and Children* (Boston, 1991). Because households in western societies are predominantly run by women, it is not surprising that the modern classics of women and technology studies deal extensively with household technologies: R. S. Cowan, *More Work for Mother: The Ironies of Household Technology from the Open Hearth to the Microwave* (New York, 1983); J. Wajcman, *Feminism Confronts Technology* (Cambridge, Mass., 1991), and "Feminist Theories of Technology," in *Handbook of Science and Technology Studies*, ed. Sheila Jasanoff et al. (Thousand Oaks, Calif., 1995); C. Cockburn and S. Ormrod, *Gender and Technology in the Making* (London, 1993). Francesca Bray's

We will explore these issues by drawing on the case of the Dutch VACs. The first of these advisory committees were established immediately after World War II, and they presently number some three hundred, in almost half of the municipalities in the Netherlands. Though geographically widespread, they are not very conspicuous and generally do not seek the limelight. Nevertheless, many politicians, architects, and building contractors hold the VACs to be quite effective. This seeming paradox is one of the issues we will discuss. The women who serve on the committees are not paid, they are self-appointed, and they are not officially accountable to anyone. Although some VAC women have received professional training as architects or town planners, that is untypical. This raises the interesting question of expertise: how do VAC women acquire their expertise, and how do they make others listen to them? The advisory committees do not hoist the flag of feminism, though their members have sometimes explicitly reflected upon their role as women in a male-dominated building world. The identity of VAC women, their self-image, and the image that other relevant social groups have of them, is another theme that we want to address.

We will first argue that it is helpful to view the house as a socially constructed technology and, as such, a strategic research site in which to study the relationships between technology, gender, and power. We will then sketch the recent history of women's involvement in housing in the Netherlands—the VACs did not fall out of thin air in 1946, but can be traced back to the beginning of this century—and describe the institutional history and organizational structure of the VACs. Our analysis next will focus on the success of the committees and on how it relates to issues of power. We will show that their gender identity plays a specific role in their strategies to exert power in the male-dominated building world. We conclude by drawing some general lessons regarding the democratization of technological culture.

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*Technology and Gender: Fabrics of Power in Late Imperial China* (Berkeley, Calif., 1997) is in a class by itself: one third of the book is dedicated to “the construction of Chinese social space,” and Bray extends the perspective of social scientists such as Bourdieu, Giddens, Lefebvre, and Williams to “examine the relation between the structure of the house and the social and cultural fabrics that it wove, the processes by which this machine was modified and standardized in the course of the late imperial period, and the nature of its contribution to social reproduction” (57). Various studies of housing and planning have been written from a general women's emancipation perspective (as opposed to that of the “gender and technology” tradition): see W. v. Moorsel, *Contact en Controle: Over het vrouwbeeld van de stichting Goed Wonen* (Amsterdam, 1992), on Dutch public housing since 1946 and its implicitly gendered ideology; M. Renoù, *Bouwen in haar perspectief: Vrouwen in verandering, consequenties voor de gebouwde omgeving* (Amersfoort, 1988), on consequences of social change in the built environment; C. Jansen and M. Vulto, “Vrouwen in een nieuwbouwwijk: vastgebouwd?” (doktoraal leeronderzoek [master's thesis], Rijksuniversiteit Utrecht, Geografisch Instituut, 1981), on the impact of town planning; and I. Rohde and S. Schuit, *Onderweg: Een onderzoek naar veiligheid voor vrouwen op straat* (Utrecht, 1987), on safety in the streets.

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To recapture the agenda for a constructivist analysis of technology, we will demonstrate the interpretative flexibility of the house, and more specifically of public housing, by disclosing the variety of identities that this artifact may have depending on its context.<sup>4</sup> In the process we will set an agenda for the further analysis of housing in terms of gender and power. Let us, then, first summarize how some of the relevant social groups constituted different housing technologies. Later in our analysis many of these groups will figure more prominently.

The first group is the hygienists of the late nineteenth century. In many European countries they formed simultaneously an important social reform movement and a professional body of medical doctors.<sup>5</sup> For these hygienists, the house was an important instrument of public health.<sup>6</sup> Women did not figure explicitly in their thinking.

The efficiency movement and home economics proponents made the house into a technology to improve household efficiency. This house was a factory in which "walking lines," household technologies, and the rational kitchen were central components. Women played an important role, both

4. Typically this is done by describing an artifact's identity as viewed through the eyes of different relevant social groups. See, for example, Pinch and Bijker on the interpretative flexibility of the high-wheeled ordinary bicycle around 1870 and its identity as an "unsafe machine" for women cyclists and a "macho machine" for its users; "The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other," *Social Studies of Science* 14 (1984): 399–441. For the background of this concept, and more detailed discussion of its implications, see Bijker, *Of Bicycles, Bakelites and Bulbs: Toward a Theory of Sociotechnical Change* (Cambridge, Mass., 1995). The effect of showing the interpretative flexibility of a technology is to make it amenable to sociological analysis: had there been no interpretative flexibility, there would have been only one identity of the technology, and engineers would have been the only "readers" of its meaning.

5. The hygienic movement in France was particularly strong in the period 1820–50, playing an active role in the 1848 revolution; see W. Coleman, *Death Is a Social Disease: Public Health and Political Economy in Early Industrial France* (Madison, Wisc., 1987). In England, the cholera epidemic of 1831–32 spurred sanitary reformers such as Chadwick, Southwood Smith, and Farr to raise the political issue of the "condition of England"; see J. Eyler, *Victorian Social Medicine: The Ideas and Methods of William Farr* (Baltimore, 1979). In Germany, the physician Rudolf Virchow also saw disease as an attribute of society, not of individuals or social classes. An enlightenment ideal of the development of science and technology to support societal progress permeates his writings; see E. H. Ackerknecht, *Rudolf Virchow: Arzt, Politiker, Anthropologe* (Stuttgart, 1957). For the history of the hygienists in the Netherlands, see E. S. Houwaart, *De hygiënisten: Artsen, staat en volksgezondheid in Nederland, 1840–1890* (Groningen, 1991).

6. Most hygienists were active members of public housing associations, since they considered the associations pioneers in "building healthy housing"; see Houwaart, 264. On the hygienists' role in town planning, see also K. Bosma, *Ruimte voor een nieuwe tijd: vormgeving van de Nederlandse regio 1900–1945* (Rotterdam, 1993).

as participants in the efficiency movement and as object of the analysis—the housewife. Though “the housewife” played a key role in the analyses and promotional arguments, there was no consensus about the emancipatory objectives that were to be served by the resulting increased efficiency.

The material feminists in the United States were much less ambiguous on this point. As Dolores Hayden observes: “For six decades the material feminists expounded one powerful idea: that women must create feminist homes with socialized housework and child care before they could become truly equal members of society.”<sup>7</sup> Between the end of the Civil War and the beginning of the Great Depression this movement raised fundamental questions about the physical separation of household space from public space and the economic separation of domestic economy and political economy. They developed experimental city forms, including new building types such as kitchenless houses, public kitchens, community dining clubs, and day care centers. For them, the house was a technology to enhance the economic emancipation of women. As a result, design discussions among utopian socialists focused on the possible combination of family houses and collective facilities for cooking, bathing, washing, and child care.

Functionalist architects constructed a more ambivalent house: on the one hand, their house was to further the modernist liberation of civilization; on the other, it reconfirmed existing public/private divisions and gender roles. We will argue that the functionalists’ view of the role of women was similarly ambivalent: the architect Jacobus Johannes Pieter Oud promoted women’s participation in house design, but without any critical discussion of their housewife’s role.<sup>8</sup> In his thinking about gender and technology, Oud explicitly associated masculinity with functionality—exactly the opposite of what the VACs would do half a century later.<sup>9</sup> In the twenties and thirties, functionalist architects combined the house components that had been established by the efficiency movement with town planning.

7. Hayden, *The Grand Domestic Revolution*, 3. In the Netherlands the Bond van Sociaal-Democratische Vrouwenclubs (Association of Social-Democratic Women’s Clubs) started around 1904 on a similar footing as the material feminists. Soon, however, they distanced themselves from ideas such as the collectivization of domestic work. See C. Hartveld, *Moderne zakelijkheid: Efficiency in wonen en werken in Nederland, 1918–1940* (Amsterdam, 1994).

8. Oud (1890–1963) was one of the founders of the de Stijl school and a prominent functionalist architect. Functionalism in the Netherlands is also known as *Het Nieuwe Bouwen*—literally, “the new architecture.” See D. van Woerkom, A. de Groot, and M. Bock, eds., *Het Nieuwe Bouwen: Voorgeschiedenis* (Delft, 1982).

9. Oud argued that functional artifacts—automobiles, locomotives, steamships, men’s dress, electronics, sanitary facilities, and the like—had an unintentional beauty. He thought the opposite true of architectural “ornament,” which Oud characterized as an outward compensation for inner impotency and for a lack of energy and tension. J. J. P. Oud, “Over de toekomstige bouwkunst en hare architectonische mogelijkheden,” *Bouwkundig Weekblad* 42 (1921), 147–60.

Thus the house as technology and the city as technology appear together on the functionalists' agenda, as had been the case for the hygienists.

After the 1940s, the relevant social group of the Stichting Goed Wonen (Foundation for Good Housing) continued the construction of the functionalist house for the family. This was a progressive movement, promoting functionalist and practical public housing while at the same time adhering to a conservative view of family and housewife.<sup>10</sup> Important elements in their house design discussions were the functionalist foundations that allowed them to criticize the norms that the Dutch government prescribed. These norms described the dominant housing technology in the postwar era, translating quantitative and qualitative criteria into narrow boundary conditions for housing corporations, architects, and builders. Not surprisingly, the family figured implicitly but dominantly as the organizing unit of society.<sup>11</sup>

Finally, the VACs sought to construct a primarily practical house. Elements from the efficiency movement and functionalist architecture as well as from the utopian socialist movement turn up in their ideas. The advisory committees themselves, however, did not make such theoretical links explicit. They typically stressed the practical usefulness of their design comments, thus enrolling consumers as their main allies in their negotiations with architects and builders.

"Housing" thus meant very different things for different relevant social groups at more or less the same time. What followed from this? Which of these many identities were subsequently socially constructed?

In the postwar era, much of this interpretative flexibility diminished in a lengthy closure process.<sup>12</sup> This complex negotiation resulted in the Dutch family house with a fixed hierarchy of living room, parents' bedroom, and two children's bedrooms. Modern, functionalist public family housing was a "man-made space."<sup>13</sup> This claim can be supported in two ways. The first

10. See W. v. Moorsel, *Contact en Controle* (n. 3 above), and "Wie gut war 'Goed Wonen'?" in *Tricks von Frau Antje: Einflussnahme von Frauen auf das Planen und Bauen in den Niederlanden*, ed. H. Fassbinder (Hamburg, 1994), 28–51.

11. For a brief overview, see W. Greter, "Woningplattegronden moeten aangepast worden aan huishoudens," *PLAN: Tijdschrift voor ontwerp en omgeving* 19, nos. 3 and 4 (1988), 52–56. For an insightful analysis of the role of norms in public housing, particularly with an emancipatory aim in mind, see J. ter Horst, K. Theunissen, and A. Vos, *Normering in de woningbouw, in relatie tot veranderende woon- en leefvormen*, report commissioned by the Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer (Ministry of Public Housing, Planning, and Environment) and the Emancipatieraad (national Emancipation Council) (Den Haag, 1987).

12. The concept of "closure" derives from the sociology of scientific knowledge, and was introduced into technology studies by T. Pinch and W. Bijker, "The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other," *Social Studies of Science* 14 (1984): 399–441. For a good introduction to the sociology of scientific knowledge, see H. M. Collins, *Changing Order: Replication and Induction in Scientific Practice* (London, 1985).

13. Here we follow the analysis of the MATRIX group (n. 3 above).

is straightforward and rather trivial, and focuses on the people involved in creating the technology. Virtually all of them were men: civil servants in the public housing ministries and town departments, managers of housing corporations, architects, builders, and even the nominal buyers. Only the VAC women provided an exception to this rule. The second way to argue that the family house of the 1950s to the 1970s constituted a gendered and male-dominated space is to focus on the “content” of the technology, and specifically on its gendered characteristics. A one-family house without communal facilities implied the fixation of public and private spheres, which under the societal circumstances of the Netherlands in the 1950s and 1960s also implied a hierarchy of gender roles.<sup>14</sup>

### Women and Housing: A Historical Sketch

Dutch public housing is exceptional when compared to other countries. A relatively large proportion of housing in the Netherlands is owned and managed by public and private not-for-profit housing corporations.<sup>15</sup> Public housing is meant to provide affordable housing of good quality to low-income families. Its history dates back to the nineteenth century, when the hygienists stressed the relationship between good housing, hygiene, and public health. In 1901 this resulted in a new Public Housing Law, which contained several instruments to check and control the quality of house production.<sup>16</sup> State Public Housing Inspectors were appointed and munic-

14. A characterization of housing designs as female and male—for example, according to such dichotomies as functional/formal, flexible/fixed, holistic/one-dimensional, or social/profit-oriented—is more problematic. This essentialist approach creates more problems than it solves. See Wajcman, *Feminism Confronts Technology* (n. 3 above).

15. The importance of public housing in the Netherlands, both with regard to its share of the housing market or in terms of its political weight, can hardly be overstated. In 1992 the so-called “social rental sector” made up 44 percent of all housing in the Netherlands, compared to 16 percent in West Germany, 17 percent in France, 24 percent in the United Kingdom, 17 percent in Denmark, and 7 percent in Belgium; see N. de Vreeze, *Woningbouw, inspiratie en ambities: Kwalitatieve grondslagen van de sociale woningbouw in Nederland* (Almere, 1993). Housing associations and municipalities ordered some 50 percent of all houses built between 1946 and 1972; see J. Nycolaas, *Volkshuisvesting: Een bijdrage tot de geschiedenis van woningbouw en woningbouwbeleid* (Nijmegen, 1974), 158. After 1945 public housing acquired a broader meaning than “housing for the poor”: “The special situation of the postwar period was that housing shortages became a problem for much larger groups in society than before the war. This resulted in an unprecedentedly comprehensive approach by the national and municipal authorities to the housing problem”; Nycolaas, 148. In line with this political reality, Nycolaas, a town planning theorist, gives “public housing” a wide meaning: “Public housing is the process by which a state economy provides for its housing” (184). See also H. Priemus, *Volkshuisvesting: Begrippen, problemen, beleid* (Alphen aan de Rijn, 1978).

16. For a brief overview, see W. A. C. Zwanikken, *Volkshuisvesting en samenleving: Sociologische beschouwingen over het vraagstuk van de huisvesting* (Assen, 1957). The



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utopian socialist who “stood out among all of the feminists and futurists of her time as the charismatic person who synthesized the thinking of suffragists, home economists, and utopian novelists on the question of the home, and produced a program for collective domesticity which made her a leading figure in feminist circles in the United States and Europe.”<sup>24</sup> Gillman, like Frederick, had some influence in Europe and inspired a number of architects and planners.<sup>25</sup>

In Europe the dividing lines were not as sharp as those between Frederick and Gillman in the United States. In the Netherlands, starting around 1904, the Bond van Sociaal-Democratische Vrouwenclubs (Association of Social-Democratic Women’s Clubs) embraced the idea of applying the scientific management approach to the household. The problems associated with scientific management in capitalist industry would not occur in this situation, they argued, where one person was both planning and working; the housewife would benefit directly from gaining time. The context was explicitly geared toward contributing to women’s independence. The cornerstones of this program were women’s suffrage, economic independence, and rationalization of the household; all three aimed at giving women better positions in political fora and in the labor market. An important debate occurred over the issue of collectivization and the possibility of a “mother wage” (*moederloon*) to give women economic independence while their children were young. During the interwar years the social-democratic movement distanced itself from the classical Marxist interpretation of marriage and family as bourgeois institutions, and in the 1920s and 1930s social democrats stressed the importance of family life and the central role of the housewife in maintaining it.<sup>26</sup>

Bourgeois industrialists in the Netherlands discovered the family as a key element in a stable society. The history of garden towns and other industry-built dwellings provides evidence of this convergence of social-democratic and industrialist views of housing. Industrialists thus gave high priority to the position of women as housewives, too. Their basic strategy was to offer good-quality housing to workers so as to engender in them feelings of belonging to a corporate family and thereby diminish labor turnover. In this effort the role of the housewife was crucial: if she was not capable of maintaining an attractive home, the male worker might be tempted to go to the pub.<sup>27</sup>

24. Hayden, *The Grand Domestic Revolution* (n. 3 above), 183.

25. Hayden, *Redesigning the American Dream* (n. 3 above).

26. See Hartveld.

27. Between 1908 and 1937, N. V. Philips Gloeilampenfabrieken created “Philipsdorp” (“Philips’ Village”), with forty-two hundred houses. A company housing booklet explained how to keep a house clean both physically—“tea leaves should of course not be dropped in the kitchen sink but in the waste container”—and morally—“Philips houses have three bedrooms, so that boys and girls older than six can sleep separate.”

The Left-oriented Bauhaus architects gave much weight to the role of an efficient kitchen in the house, and cited women in that connection. Oud, working on his design of the Weissenhofsiedlung, welcomed a list of housing requirements adopted by the Berufsorganisation der Hausfrauen Stuttgarts (Professional Union of Stuttgart Housewives). "The housewives in Stuttgart asked themselves, on the occasion of a housing exhibition by the Deutsche Werkbund, what joy of life they were losing by the conservatism or playful egoism of architects. They do not wish to be victims of that any longer, and have drafted a program of requirements to be met in building new houses."<sup>28</sup> Oud concluded, before reproducing the German women's program in full, that it would be good if Dutch women would also join forces to agree on such requirements and to contractually bind architects to it.<sup>29</sup>

The convergence of the rationalist, efficiency-oriented women's movement and functionalist, machine-age architecture, despite their ideological differences, is typical of the relatively broad reformist movement of the first decades of the twentieth century. Thus the first feminist wave, in these years before World War II, consisted of a broad coalition of workers and bourgeois women.<sup>30</sup> In the case of the efficient kitchen, the key idea for the groups involved was that the housewife should get more space and time—not for herself, but as mother and spouse. She had to become mistress of her domain—but within the societal function of the family. Commenting on Le Corbusier's phrase "the home is a machine," Judy Wajcman has observed that "while espousing emancipatory, indeed socialist-inspired politics, it seems the modernists did not appreciate that machines need constant servicing. For women, the machine was to become a treadmill."<sup>31</sup>

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Philips considered the experience of the average worker's housewife insufficient and appointed female inspectors who visited houses, sometimes several times a day, to advise on housekeeping, budget management, pedagogical issues, and leisure activities. There is a striking parallel here with the Ford Motor Company's use of inspectors to check on the home life of immigrant workers as part of the five dollar day package after 1914. H. Lakmaker, "Een lief vogelnestje: Volkshuisvesting en de bouw van Philipsdorp," in *Vrouwendomein: Woongeschiedenis van vrouwen in Nederland*, ed. Maria Grever et al. (Amsterdam, 1986), 77–86.

28. J. J. P. Oud, "Huisvrouwen en architecten," *i 10 (Internationale revue)* 1 (1927): 44–48, 46.

29. Elsewhere we have traced in more detail the relationship between Oud and Erna Meyer, who was the most prominent spokesperson for these Stuttgart women. Their relationship is interesting because it foreshadowed both the attraction and the animosity now so typical of the relations between VAC women and male architects. K. Bijsterveld and W. E. Bijker, "'De vrees om louter verstandelijk te zijn'—Vrouwen, woningbouw en het functionalisme in de architectuur," *Kennis en Methode* 21, no. 4 (1997): 308–34.

30. See U. Jansz, *Denken over seksen in de eerste feministische golf* (Amsterdam, 1990), and Hartveld (n. 7 above).

31. Wajcman, *Feminism Confronts Technology* (n. 3 above), 114.

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Thus a specific concept of public housing—affordable, hygienic, functional, efficient, and supporting central family values—was established before World War II. The concept grew out of broader international developments, but acquired a specific Dutch form. World War II meant an important change in public housing policies. The war caused a dramatic shortage of housing and simultaneously wrecked the building industry as a production sector. This resulted in broad political and societal support for direct intervention by the central government in the building and housing markets.<sup>32</sup> The 1901 Public Housing Law still formed the legal framework for these centralist housing policies, but they were now much more detailed and intense. The concept of public housing was broadened to include housing for middle-class families—a development that has distinguished Dutch public housing from public housing in other countries, where it is typically limited to low-income families. One consequence is the huge proportion of public housing in the Netherlands noted earlier.

This is the stage on which the VACs appeared in the late 1940s, a stage peopled with a cast of builders set upon repairing war damage: functionalist architects, rationalist women, and nonfeminist socialists.

### The Vrouwen Adviescommissies voor de Woningbouw

The first VAC was established in Rotterdam in 1946, and its roots lie in the functionalist-rationalist movement. Two women's associations took the initiative. The Nederlandse Vereniging van Huisvrouwen (Dutch Association of Housewives) and the Nederlandse Bond van Plattelandsvrouwen (Dutch League of Rural Women) argued that not enough notice was being taken of the most important users of new dwellings: women. Housewives complained about the impractical features of the new housing projects. Worries about the quality of housing were compounded by a shortage of servants. Only rarely did housewives continue to employ maids, making efficient housekeeping even more necessary.<sup>33</sup> Later, in other communities,

32. In 1948 the national government estimated war damage as follows: 82,000 houses destroyed, 40,000 seriously damaged, and 386,000 lightly damaged, out of a total of 2,200,000 houses in 1940. Additionally, 14,600 farms, 1,650 schools, 243 hospitals, and 700 bridges were destroyed or damaged. N. de Vreeze (n. 15 above), 250.

33. There are a few sources on early VAC history in the archives of the Stichting Landelijk Contact van de Vrouwenadviescommissies voor de Woningbouw in Utrecht (National Association of Women's Advisory Committees on Housing, hereafter LCVAC archives): LCVAC, "Het ontstaan van de V.A.C.'s," n.d., Box "Corr. LC met VAC's e.a. instanties 1968-1974 + uitgezochte stukken voor jub. boek," 1; L. van Vianen-Ort, "Praatje gehouden op de jaarvergadering van de Woningbouwcorporaties in Zeeland te Kruiningen op 27 november 1971," Box "Allerlei uitgezochte stukken voor Jub. boek," 1; "Wat doet de VAC, gemeentelijk, provinciaal en landelijk en hoe is haar verhouding tot de vrouwenorganisaties: Voorbeeld van een lezing over de VAC voor vrouwenorganisaties

local authorities and women's groups affiliated with political parties also established VACs, and their number grew steadily.<sup>34</sup>

Most VACs were made up of members of women's organizations, with representation often carefully distributed among the pillars (*zuilen*) of Dutch society: Catholicism, Protestantism, socialism, and liberalism.<sup>35</sup> The committees ranged in size from five members in smaller communities to fifteen in the largest cities, but average membership was then, and still is, seven to eight women, all volunteers, for a total of about 2,500 women in all.<sup>36</sup> The typical VAC member was white, middle class, between 40 and 55, married with children.<sup>37</sup> There was some concern among VAC women about this obvious social bias, but it proved difficult to enroll VAC members "who were really living in workers' houses."<sup>38</sup> It was equally difficult to enlist younger women, since they typically had difficulty combining committee work with child care and housekeeping. Municipalities subsidized most of the advisory committees. A minority received very moderate funding from women's associations or housing corporations.<sup>39</sup>

In the 1950s, consultation and cooperation among the various local advisory committees began, with field days and the creation of a national center. In 1961 the first regional county board (Provinciaal Bestuur) was

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(Alleen geschikt voor intern gebruik door VAC-leden)," 1976, 2. See also LCVAC, *VAC-Map* (Utrecht, 1994), 4, and L. Hutjes, *VAC: Vrouwen Advies Commissies voor de woningbouw in Nederland* (Utrecht, 1987), 9.

34. The number of VACs rose as follows: 1946, 1; 1950, 3; 1955, 17; 1960, 45; 1965, 77; 1970, 110; 1975, 156; 1980, 184; 1985, 197; 1989, 247; 1994, 285. H. C. Meinsma, *Bouwen aan kwaliteit . . . een kwestie van volhouden* (Utrecht, 1990), and LCVAC, *VAC-Map*, 16.

35. Historians of Dutch society often employ this framework. "Pillarization" has been defined as "the extent to which people intentionally perform their social, cultural, and political activities within their own ideological circles"; J. C. H. Blom, "Onderzoek naar verzuiling in Nederland: Status questionis en wenselijke ontwikkeling," in "Broeders, sluit u aan": *Aspekten van verzuiling in zeven Hollandse gemeenten*, ed. J. C. H. Blom and C. J. Misset (Amsterdam, 1985), 17. For a recent discussion of the concept of pillarization, see P. de Rooy, "Zes studies over verzuiling," *Bijdragen en Mededelingen betreffende de Geschiedenis der Nederlanden* 110, no. 3 (1995): 380–92.

36. LCVAC, *VAC-Map*, 16.

37. Meinsma, 68. It is difficult to get detailed information about the background of the early VAC women. We base our characterization on the present membership, on our reading of group portraits of early VACs, on interviews in *VAC-Nieuws*, and on an analysis of home address information (for the VACs in Rotterdam, Leiden, and Maastricht) that indicates that VAC women were living in the better neighborhoods.

38. N. Nicolai-Chaillet, "Vrouwen Advies Commissie te Rotterdam," *Goed Wonen* 13, no. 5 (1960): 148–49, 148.

39. Rotterdam municipal archives, Vrouwen Advies Commissie voor de woningbouw Rotterdam, box 2, "Verslag van de vergadering van de V.A.C.'s uit het gehele land, gehouden op 18 november 1954 in het Stadsstimmerhuis, Rotterdam." At present, the funding provided by the local municipalities comes partly from public housing sources and partly from emancipation programs of the Ministry of Social Affairs; see Meinsma.

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established, in which both local VACs and women's associations were represented. In 1965 cooperation among the committees resulted in establishment of the Stichting Landelijk Contact Vrouwenadviescommissies voor de Woningbouw (National Association of Women's Advisory Committees on Housing). The association's aims were to assist the local committees, to stimulate and coordinate their activities, and to execute tasks on a national rather than local or regional level, such as doing research or commenting on national housing policy. Since 1965, the association has informed local VACs about new developments with its newsletter, *VAC-Nieuws*.

The creation of this national coordinating body converged with the development of the representational role of the advisory committees. From the 1940s through the early 1960s the committees explicitly sought to represent the housewife. Although men built houses, women were most experienced in living, the VACs argued, since they spent a considerable part of the day inside their dwellings. Women should be heard, therefore, in the interest of family life and society in general.<sup>40</sup> In the course of the sixties the committees' definition of those for whom they spoke subtly changed: "The aim . . . is to let the voices of future residents speak during the process of building, especially those of housewives, starting from the experience of the practice of housekeeping."<sup>41</sup> Housewives still had a place within this definition, but the family was less central. In the course of the seventies, the VACs increasingly took into account women working outside their homes and began to speak of the wishes of "women" rather than "housewives." By the end of the decade the advisory committees had started to drop any explicit reference to women in the definition of their goals. They wanted to speak for house consumers in general.<sup>42</sup> This final position was formalized by the ministry of housing, when the Stichting Landelijk Contact Vrouwenadviescommissies voor de Woningbouw was officially designated one of three housing consumer organizations.<sup>43</sup> Although this status—offi-

40. The early VAC advisories mirror the atmosphere of the 1950s—the postwar effort to rebuild the Netherlands while leaning heavily on the family as the cornerstone of society. High-quality housing would let women fulfill their heavy task of providing a family life in which fathers could read the evening newspaper quietly while the children played. W. J. Groenewegen-Theunisse, "Stemmen uit de praktijk van het wonen," 1962, LCVAC Archives, Archief 2, folder "Gedenkboek."

41. "Vrouwenadviescommissies voor de Woningbouw, Stichting Landelijk Contact van de VAC's, A. Febr. 1965," LCVAC archives, Archief 2, folder "Gedenkboek."

42. Their starting point, however, remained the women's experience, since, they argued, women still had most experience as residents. Indeed, the membership of all VACs is still exclusively female. Landelijk Contact van de Vrouwen Advies Commissies voor de Woningbouw, *VAC Informatienummer 1979–1980* (Utrecht, 1979), 3.

43. Three elements of national politics converged here: an increasing attention to consumer involvement (as part of a general tendency to decentralize control to the local level), the need to give attention to emancipatory aspects, and the typical Christian Democrat (and Dutch) focus on the "societal midlevel" (*het maatschappelijk midden-*

cial consumer organization—did earn the association political support and funding to strengthen its central organization, it also caused some difficulties. In contrast to the two other organizations, the local committees did not have consumers as members. They answered the question “for whom do we speak?” by claiming that they spoke for future residents.

At first the main activity of the local committees was to comment on plans for new state-funded dwellings commissioned by municipalities and housing corporations. Some paid attention to interior design, too. The Rotterdam VAC, for instance, took the lead in organizing exhibitions to teach the public how to furnish their homes.<sup>44</sup> In pursuing such activities the Rotterdam VAC both resembled and drew upon the earlier Stichting Goed Wonen. More recently the VACs have extended their activities to town planning, public utility building, and commercial housing projects.

Since 1967 the advisory committees have carried out comprehensive “housing quality inquiries” (*woongeriefonderzoek*).<sup>45</sup> This has enabled them to call their work “cyclical.” They advise on housing and city plans as early in the process of planning, designing, and building as possible. The committees evaluate plans according to specific checklists, visit building sites (fig. 1), and sometimes participate in building teams, together with commissioners, architects, and contractors. Some enter into contracts with municipalities and housing corporations to specify the occasions on which they will seek the committee’s advice. The committees always produce written reports and also sometimes meet with architects and designers, commissioners, and municipal services to discuss plans. Two years after the completion of a housing project, VAC members visit the project again, eval-

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*veld*). All ministries were obliged to implement “emancipation facet policies.” As the director of the Stichting Landelijk Contact Vrouwenadviescommissies voor de Woningbouw observed: “We are the only organization that could help the Ministry to meet the emancipation facet policy requirements”; Paulien van der Krabben and Ria Hilhorst, interview by authors, Utrecht, 6 June 1996. The other two officially recognized organizations were the national owners’ and the tenants’ organizations.

44. They also published a booklet that promoted house decoration without ornaments to make small dwellings look more spacious; Rotterdam municipal archives, Vrouwen Advies Commissie, box 2, *Eindelijk hebben we een huis!* For the exhibitions, see box 1, “Het hoe en waarom van de tentoonstellingen die de V.A.C. houdt.”

45. See Meinsma (n. 34 above), 137–38, 149–50. For an inventory of eighty-nine VAC “housing quality inquiries” from the period 1988–90, see Directoraat-Generaal van de Volkshuisvesting, Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer, Directie Onderzoek en Kwaliteitszorg, *Eenvoudige oplossingen—grote verbeteringen: Woongeriefonderzoeken als ingang voor kwaliteitsverbetering van woningen* (Den Haag, 1992). Two other reports summarize and analyze housing quality inquiries in 1991–92 and 1992–93: A. D. Kuipers, *Wonen ruim bemeten: Ervaringen van bewoners met het gebruik van de woning en de woonomgeving op basis van VAC-woongeriefonderzoeken*, vol. 1 (Utrecht, 1993), and M. D. Munneke, *Wonen ruim bemeten: Ervaringen van bewoners met het gebruik van de woning en de woonomgeving op basis van VAC-woongeriefonderzoeken*, vol. 2 (Utrecht, 1994).

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FIG. 1 VAC members on a building site. (Courtesy of the VAC-Roermond, the Netherlands.)

uating the quality of their own suggestions and checking the extent to which they were implemented. The VACs use these visits to revise the checklists they use to evaluate new housing projects.

Most VACs have a plenary meeting every month. In the meantime, subgroups study site plans and housing designs, prepare recommendations, visit building sites, carry out housing quality inquiries, react to zoning plans, write policy notes, make work plans, and so on.<sup>46</sup> The checklists they have devised to evaluate plans for housing and town plans concentrate on functionality, practicality, suitability, flexibility, accessibility, safety, comfort and hygiene.

### Success and Power

Throughout their history, architects, builders, civil servants, and the committees themselves have considered the advisory committees to be suc-

46. A zoning plan (*bestemmingsplan*) specifies the permissible use of a piece of land—residential, commercial, industrial, etc. The determination or change of zoning plans is a long and difficult procedure with many political and bureaucratic snags. Their pervasive role in the Netherlands can be clearly seen when travelling through the country: it explains the clustering of activities, the sharp boundaries between village and farmland, the absence of isolated shops along country roads.

cessful.<sup>47</sup> This judgment is not a straightforward matter, however. The committees typically do not celebrate their successes in public. They are considered successful because they have concrete influence on the quality of housing. In 1958, for instance, the Rotterdam VAC visited one of the sites about which they had given advice. They compared the built result with their recommendations and found that eleven out of twenty had been adopted, while nine had not. Among the former were an enlarged cupboard and the installation of a service hatch. Suggestions that the builder did not follow included enlarging a sink unit (which resulted in a leftover space that was difficult to clean) and installing a washbasin in the bathroom.<sup>48</sup> Since then, long lists have been made of the improvements in housing plans realized because of the committees' interventions (fig. 2). Typically these involved relatively small modifications to the plans: changing the direction in which a door opens, modifying a bathroom layout, isolating a toilet adjacent to the living area, adding skylights or an extra wash basin in the bedroom.<sup>49</sup> Occasionally a VAC might criticize an entire plan. The following story is often told in VAC circles: During a meeting with an architect, a VAC woman in Terneuzen resolved the problem of a drafty outside gallery in an apartment building for the elderly by taking a pair of scissors (the woman was a tailor by profession), cutting up the architect's plan, and rearranging it so that the gallery ended up on the inside. The architect followed the advice.<sup>50</sup> VAC women explicitly make the argument, and we agree with them, that these incremental improvements are not less relevant because they are small.<sup>51</sup> It is important not to identify technical progress solely with big changes and radical innovations.

47. In a report to the Ministry of Housing, Planning and Environment, Van Eyck and Samson report that all their interviewees agreed that VACs do indeed have influence. Most of the discussion centered on how to enhance this influence. A. M. v. Eyck and L. Samson, *Vrouwen Advies Commissies voor de woningbouw: De rol van de VAC's in het gedecentraliseerde volkshuisvestingsbeleid* (Den Haag, 1991).

48. Rotterdam municipal archives, Vrouwen Advies Commissie, box 3, "Verslag excursie V.A.C. op 16-5-1958 naar Zuidwijk."

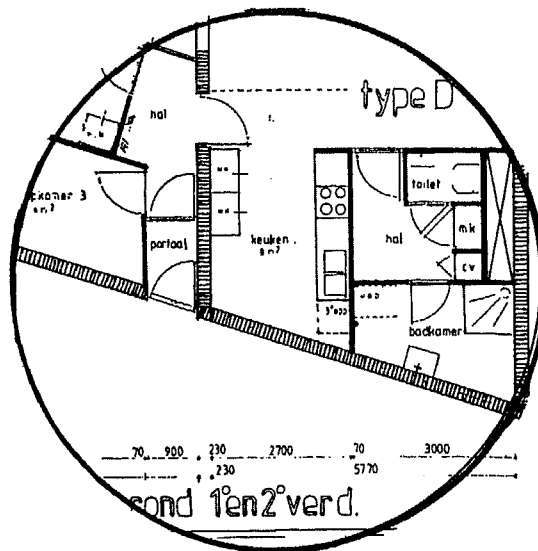
49. These examples come from a list of "items that are generally changed upon request by a VAC" compiled in a study of eleven architects by the VAC-Helmond; see Meinsma, 138. Suggestions that were less often followed included changing the kitchen layout, adding a porch between the kitchen and living areas and a door to the garden, removing a window in the front wall for privacy reasons, eliminating low window panes, and changing the location of a toilet door immediately next to the front door.

50. Emmy Galama, interview by authors, 13 June 1997. See also VAC-Terneuzen, *Dertig jaar VAC Terneuzen* (Terneuzen, 1995), 13–14.

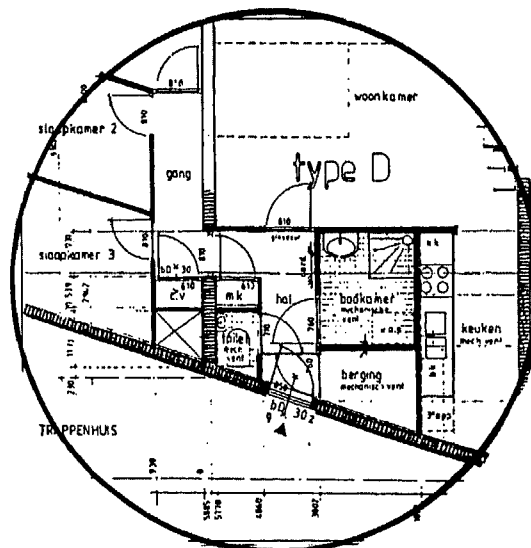
51. The "smallness" of these improvements is also relativized when the costs to realize them may be high. As one VAC reported: "[We] considered it better to swap the terrace door and the window. . . . During a meeting with the builder we were surprised to hear that this advice was followed, even though half of the floors were already finished"; "Onverwacht succes," *VAC-Nieuws*, July/August 1995, 10. Also, the complete change of the floor plan of a house hardly is a small revision; see "Woningplattegrond flink aangepast na VAC-advies," *VAC-Nieuws*, July/August 1995, 10.



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ONTWERP 4 KAMERETAGE WONING TE HOUTEN



GEWIJZIGD ONTWERP VAC

FIG. 2 Design for a three-bedroom apartment. The original design is on top; below is the new design incorporating changes suggested by the VAC. Some of the improvements: front door moved, toilet and bathroom open onto hallway ("hal" and "gang"), addition of a storage area ("berging"), improved bathroom layout, larger living room ("woonkamer"). (Courtesy of the VAC-Houten, the Netherlands.)

Incremental improvements in housing plans are one result of the advisory committees' work. Another kind of success is an increasing awareness among municipalities, architects, and builders of the consumer's perspective. A report published by the Ministry of Housing lists improvements that were suggested by VACs "to demonstrate how the use of consumers' information, such as VACs housing quality inquiries, can improve housing quality."<sup>52</sup> In 1993 the Ministry of Housing wrote to all Dutch municipalities, urging them to ask for the VAC's advice in all public housing plans.<sup>53</sup> With the professionally produced *VAC-Kwaliteitswijzer* the VACs dropped all modesty and presented a comprehensive guide to checking the quality of housing plans.<sup>54</sup>

The committees also exerted a second form of structural influence, more concrete than improving the awareness of consumers' perspectives among builders and architects. In the 1960s the VACs were involved in drafting new governmental "prescriptions and suggestions for public housing" (*Voorschriften en wenken voor de woningbouw*), which elevated their comments to a level that pertained to all public housing in the Netherlands. In 1974, responding to objections about the family bias of public housing, a new form of housing was created: *Huisvesting voor alleenstaanden en tweepersoonshuishoudens*, housing for one- and two-member households, or HAT. Although the new housing came in for much criticism (including criticism by the VACs), it did signal a departure from the overriding priority of the two parents–two children house in Dutch housing regulations.<sup>55</sup> The advisory committees also played an important role in discussions about more flexible housing, which became an issue in Dutch public housing in the 1980s.<sup>56</sup> They strongly supported this development and helped shape it (fig. 3).

Has their influence had a positive effect in terms of gender issues? The VACs do not associate themselves explicitly with feminism in its more radical forms. On the other hand, they do invoke their experience as house-

52. Directie Onderzoek en Kwaliteitszorg, *Eenvoudige oplossingen—grote verbeteringen* (n. 45 above), 3.

53. E. Heerma, Deputy Minister for Public Housing, to all mayors in the Netherlands, 27 July 1993. The body of the letter urges the municipalities to seek advice from their local VAC on a variety of housing-related issues, and the final sentence reads: "I would much appreciate if you would support the VACs' work financially."

54. The book measures quality according to six criteria: usefulness and effectiveness, accessibility, safety, health and comfort, durability, and ease of cleaning and maintenance. It is illustrated with numerous technical drawings. VAC, *VAC-Kwaliteitswijzer: Integrale visie op de gebruikskwaliteit van woning en woonomgeving* (Utrecht, 1997).

55. Since this house was defined outside the existing norm, it was quickly criticized for having too little space and too few doors and windows opening onto the outdoors.

56. The report by members of the women's studies group at the School of Architecture, Delft University of Technology, played an important role in starting this development; see Ter Horst, Theunissen, and Vos (n. 11 above).

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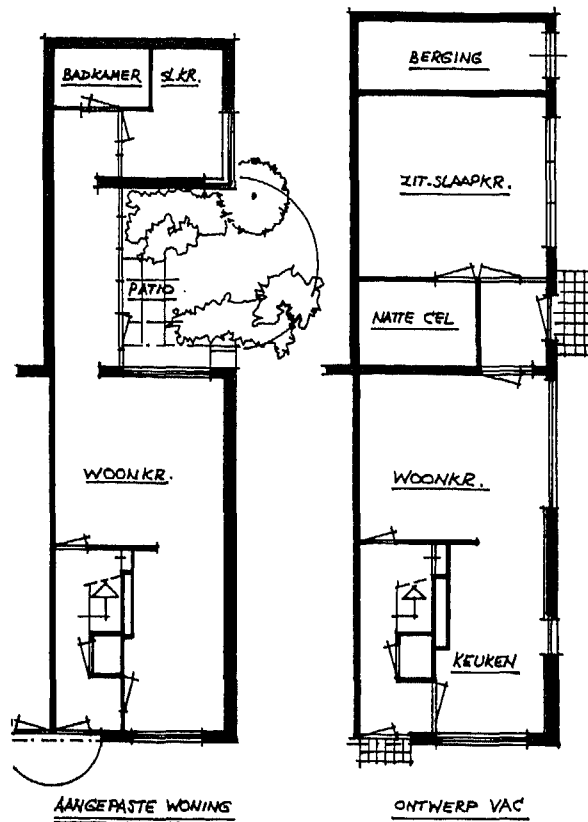


FIG. 3 Design for a small house for a handicapped person. On the left, the original design; on the right, the new design incorporating changes suggested by the VAC. (Courtesy of the VAC-Den Haag, the Netherlands.)

wives to present specific practical solutions. One way of summarizing the advisory committees' position is to say that their goal is not to promote building for women, but that building for all sexes can benefit from their specific experiences as women. Some may be tempted to ridicule the committees' advice as mere frills on an otherwise impossible-to-change male design scheme. Others may recall Marcuse's diagnosis of "repressive tolerance" in cases where influence is granted without fundamentally changing societal relations, thus merely repressing a potentially critical opposition.<sup>57</sup>

57. This risk is recognized by the VAC women. Commenting on the ministry's support for the committees (cf. note 53), the VAC director remarked that "this was the only thing they ever did for emancipation, and even about this we were doubtful; but, well, being the token woman ("excusus Truus") did help us a bit further." Van der Krabben and Hilhorst interview (n. 43 above).

Our evaluation is more positive. First, we think that the VACs do not merely occupy themselves with frills. Such an observation (indeed, the very word) implicitly assumes that the day-to-day practicalities of living and house-keeping are less important than more abstract design features and high-aggregation policy issues. That assumption would exactly reproduce one of the central tenets of the dominant male house-building practices that the VACs critique. It also underrates the importance of incremental change in technology. The advisory committees' increasing influence on national and structural issues has distinct gender relevance. The introduction of flexible housing, for example, created more space for women to arrange a life outside the standard family structure with its fixed gender roles.

But there are limits to the committees' success. The first is trivial: many housing projects in the Netherlands are still built without VAC advice, often because the local VAC has no time or because there is no local VAC. The second is related to power relations between the relevant social groups involved: sometimes the other relevant social groups refuse the VAC access to the design process and the negotiation table. The third limit, to which we will turn in the next section, is caused by the technology itself.

Have the VACs enough power? What if the builders, or architects, or city councils, or housing corporations simply are not willing to listen?<sup>58</sup> Questions such as these implicitly use a misleading concept of power—as if power is something that one can accumulate, store, distribute, and lose. This concept is misleading because it tends to reify asymmetrical relationships and thus results in begging the question of how one group came to have power over another group.<sup>59</sup> Is a VAC more powerful than a building contractor if it succeeds in changing the position of a stairway, even during the building process? Is an architect more powerful than a VAC if he gets away with refusing to change the shape of a floor plan? Rather than casting the issue in such static terms, we ask more interactionist questions: how did a VAC succeed enrolling the architect and the housing association as allies in compelling the builder to move the stairway, even after he had started construction? How did the architect muster enough discretion over his

58. In our discussion of gender and power we take a different and more specific tack than is typical of gender studies. For a comprehensive discussion of these gender studies views, see W. Faulkner, "Gender in/of Technology" (paper presented at the International Symposium on Science, Technology and Society, Istanbul, 1999). The more general analyses relate power to masculinity and associated images of technology. See, for example, B. Easlea, *Fathering the Unthinkable: Masculinity, Scientists, and the Nuclear Arms Race* (London, 1983); S. Harding, *The Science Question in Feminism* (Ithaca, N.Y., 1986); D. F. Noble, *A World Without Women: The Evolution of the Masculine Culture of Science* (New York, 1991).

59. For an empirical basis for this critique and a fuller exposition of the alternative, constructivist conception of power that we employ here, see Bijker, *Of Bicycles, Bakelites and Bulbs* (n. 4 above). The discussion of the obduracy of technology in the following pages is linked to this conception of power.

plan to get the housing association to accept his proposal, even though the VAC criticized it? Viewed in this way, "power" is more a summary concept that serves to describe in one word a situation that can only be understood as the result of a long chain of complicated interactions. Power is not an explanatory concept itself, the *explanans*; on the contrary, it is the *explanandum*, that which is to be explained.

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Strategies make up one aspect of this conception of power—they are the micropolitics of power. The advisory committees employ a spectrum of micropolitical strategies: presenting comments in a positive rather than a critical sense; declining to boast of successes; building up technical expertise; not stressing a feminist perspective; focusing on small, concrete, technical improvements; and emphasizing the functional and the efficient rather than the aesthetic and the grandiose.<sup>60</sup> The other aspect is semiotic power: power as the apparent order of taken-for-granted categories of existence as they are fixed in technological frames.<sup>61</sup> Where the concept of the micropolitics of power stresses the actor side, the semiotics of power highlights the structural side of this conception. Micropolitical actions and relationships do not occur in vacuo but rather against a backdrop of fixed meanings: social institutions, technical artifacts, values, interests, and expertise. Semiotic structure is not static, given, a residual category in explanation, but can itself be understood as the result of previous micropolitical interactions. The typically Dutch consensus-oriented, elite, church-structured society of the 1950s forms the semiotic power structure within which the VACs operate. It is not surprising that their strategies mirror the political culture of the 1950s in the Netherlands. It is more surprising that the committees did not drastically change their strategies in the 1960s and 1970s, when a more adversarial culture developed—at least superficially—in the Netherlands.

This may help us to understand the power aspects of the VAC world. Strategies are aimed at realizing particular aims in concrete cases and at establishing a favorable semiotic power structure. Thus the advisory committees invest in their relationships with city council politicians and civil servants in an effort to establish an obligation for housing corporations and architects to consult the committees, and they invest in the norms for public housing themselves, forming one of the most powerful semiotic

60. Other micropolitical strategies that have been identified in technology studies are the enrollment of new relevant social groups, redefining problems, rhetorical closure, and establishing obligatory points of passage.

61. A "technological frame" structures the interactions among members of a social group, and is similar to Kuhn's "paradigm." A high inclusion in a technological frame means that an actor interacts, acts, and thinks to a great degree in terms of that frame—the actor is quite central to that technological frame. A low inclusion means that an actor only employs the vocabulary, values, aims, techniques, and so forth of that frame to a limited extent—she or he is rather marginal. See Bijker, *Of Bicycles, Bakelites and Bulbs*.

structures within the Dutch building world. This is the crux of their “peacekeeping strategies,” to which we will return below: deploying micro-political power strategies in such a way that the existing power structure is changed without wholly overturning it, and with it one’s own base for micropolitics.

### The Obduracy of Housing Technology

Housing technology is socially constructed. But to say that technology is socially constructed is not to say that all technical artifacts are always malleable. Technology can be very obdurate after the closure and stabilization processes have occurred. This characteristic of hardness best explains the societal impact of technology as people experience it. The obduracy of housing technology, its resistance to modification, limits the success of the VACs. At the same time, such success as they do achieve can be partly understood as the result of their ability to work around and within the hardness of technology. We therefore will use the VAC case to illustrate a perspective on technology that recognizes both technology’s social impact and determinist aspects and its socially constructed character.

Technology can present itself to actors with two different types of hardness, depending on the degree of inclusion in a technological frame that those actors have. Highly included actors experience the first type, a “closing-in” hardness. Such actors have no life outside that technological frame. They do, however, see much differentiation within their world. The architects’ high inclusion in the technological frame of Dutch public housing meant, until the end of the 1960s, many variations in floor plans, external decoration, and organization in individual houses or apartment buildings but never outside the definition of a one-family house with traditionally gendered role distribution. The second type of hardness, a “closing-out” obduracy, is experienced by lowly included actors. Such actors do not see much differentiation within the technology, and can take it or leave it. Single-mother families, childless couples, and single elderly experienced this kind of obduracy when confronted with public housing in recent decades.

In the 1950s and 1960s, the recommendations of the advisory committees were limited to changing details within housing plans and did not criticize foundational principles. The price they paid was their implicit support of the nuclear family house with fixed gender roles (not a high price for the middle-class VAC women, of course). The profit they gained was acceptance by the male actors in that world and effectiveness in exerting influence within the boundary conditions of that frame. For the VACs, housing technology had the “closing-in” hardness.

How to escape from the closing-in technology, to move beyond details and criticize the principles behind the public housing in the 1950s and

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1960s?<sup>62</sup> There seem, in principle, to be two ways. The first is to stay inside the technological frame and change the technology from within, as it were. The second is to adopt a higher inclusion in another frame and to criticize the technology from the outside. Both strategies appear in the activities of the VACs during the 1970s to 1990s.

In the early 1980s, the advisory committees became critical of the existing public housing schemes as too fixed on the nuclear family, the traditional gendered division of labor, and the separation of public and private spheres. This critique was difficult to conceive and to formulate within the dominant technological frame of public housing. The committees succeeded in doing so by two different strategies, the first based on developing an additional inclusion within feminism, the second on developing specific expertise by collaboration with a female architect.

The first strategy plays with varying degrees of inclusion. The aim to change a technology radically creates a dilemma: radical alternatives are only perceived from a low-inclusion vantage point, but changes can only be made from a high-inclusion position. The VACs found an intriguing modus operandi by which to negotiate the horns of this dilemma. They seem to have effectively established external and internal vocabularies, associated with two different social networks. The local committees stress their high inclusion in the builders' technological frame by using the nonactivist, male, expert vocabulary of planning, designing, and engineering. With this high-inclusion language the VACs do not claim authorship of plan improvements very prominently; they play the housewife's experience card rather than the feminist one. But the central VAC organization offers another social network, in which VAC women discuss plans and strategies with each other, where they may quite critically evaluate each other. This internal interaction creates a low-inclusion perspective on the day-to-day practices of a single local VAC with a much more self-conscious female identity where some women use feminist arguments unrestrictedly. This combination of external and internal networks with associated vocabularies allows the VACs to maintain a strategic combination of high and low inclusion in the technological frame of the builders and architects, and it produces the peacekeeping strategies that we identified in the previous section.

The second process by which the advisory committees managed to influence the discussion on flexible housing perhaps does not qualify as a conscious strategy, but it certainly helped them develop the specific expertise needed to escape from the closing-in hardness of the one-family house. It involved the close collaboration of the Apeldoorn VAC with the architect

62. Of course, a high inclusion is never complete, and actors are typically included in more than one technological frame at a time. Otherwise a high-included actor would never ask such a critical question, unconscious of a world outside her technological frame as she then would be.

Luzia Hartsuyker. Hartsuyker developed her ideas on flexible house plans in the 1970s. As she recalls: "Women's emancipation played an important role in the development of these ideas. More and more women did want to work, or to begin a study. A house like this facilitates that. In discussions with residents I noticed that women especially appreciate being able to determine themselves how rooms are made fit for specific activities. Most men are still hesitant. Male civil servants, for example, sometimes ask—surprised and alarmed—where the living room is."<sup>63</sup>

The advisory committees consistently stressed the importance of expertise, although their definition of expertise changed in an intriguing way. At first they circumscribed their own expertise by grounding it only in experience. Committee members were not to behave like commissioners and architects, and should develop recommendations without thinking about costs, feasibility, or technical requirements. Moreover, the VAC women did not allow themselves to provide solutions but only to offer recommendations by pointing at impossibilities and inconsistencies in specific designs.<sup>64</sup>

From the early sixties however, the VACs began to recognize the need for competent members in order to gain respect in the technical world of architecture. The national association distributed information about training programs, and when not too expensive these were well attended.<sup>65</sup> Then the association started to develop courses itself, to teach local VAC women about housing policy and reading plans. In the 1970s some courses became compulsory for new VAC members.<sup>66</sup> The VACs also gradually dropped their modest position of "no solutions, only advice." We have already mentioned the woman in Terneuzen, who provided a solution by cutting up the architect's plan. In the discussion about flexible housing, to cite another

63. Quoted by H. Klieverik, "De ongedefinieerde woning van architecte Hartsuyker," *Woningraad*, 9 November 1988, 12. The interesting question of whether the particular content (flexibility) of this housing technology was crucially influenced by Hartsuykers' being female—a question belonging to a genre with a long history in gender and technology studies—we cannot answer, at least not here and now. To attempt to do so would inevitably lead us into essentialist interpretations which we do not particularly like, as we mentioned previously.

64. J. v. Nederveen-Snellen, "Samenwerking van architect en huisvrouw," *Bouw* 12, no. 37 (1957), 903–19; A. Kolk, "De stem van de vrouw," *Industrieel Bouwen* 2, no. 5 (1965), 26–27; LCVAC, Stencil no. 10, 13 February 1970, LCVAC Archives, Box "Allerlei uitgezochte stukken voor jub. boek."

65. For example, on 6 and 7 March 1963 sixty VAC members attended a course by the Association of Electric Utilities in the Netherlands on "household appliances and their position and operation space"; Meinsma (n. 34 above), 20.

66. Examples include H. Heesmans and G. Hendriks, *Voor VACs bestemd! Cursus Bestemmingsplan*, vol. 1, *Cursusboek*, and vol. 2, *Opzoekboek* (Utrecht, 1990); R. v. Eck and P. Haberer, *VAC-Fundament: Basiscursusboek* (Utrecht, 1992). For the history of the internal training program, see also Meinsma, 51.



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example, the VACs argued for a specific solution: the *drager-inbouw-systeem* or support/build-in system, a technical solution in which the structural elements of a house (e.g., load-bearing walls, roof) are relatively independent from functional elements (e.g., space separation, doors, windows).

The VACs tried to position their expertise between uninformed residents and experts. In a report on a visit to some newly built dwellings, a VAC woman identified many mistakes, despite the fact that the future residents had participated in the design process. "Please come with me," the author wrote, inviting the reader to "walk" with her through a mental picture of the house. She showed a hall without space for hat stand, tennis rackets, school bags, and rain boots; she stumbled into a dinner corner too small to walk around the table; she climbed the staircase with too short a railing; she looked into bedrooms with windows placed too high to have a view outside and a bathroom without a separate shower basin, making it necessary to mop daily. This prompted the VAC woman to suggest that the residents had participated without knowing what they were talking about and without having "objective" knowledge.<sup>67</sup> They differentiated themselves from professional experts by stressing their particular combination of expert and practical knowledge. Their checklists always "asked" VAC women to "walk" through plans and to "picture" the possible activities of future residents. Similarly, the VACs asked members to ask themselves whether a specific town plan made it possible to ferry children to schools and other child care, to work, to fetch the children again, and do some shopping all in one day.<sup>68</sup>

Most committee recommendations were presented as being "practical" with respect to the activities of residents, and here we also see an initial focus on housewives' activities. In 1955, for instance, the Rotterdam VAC recommended adding extra toilets and washstands, asked designers to provide for carrying bicycles and prams into basements, promoted the availability of wardrobes, and criticized the location of cookers.<sup>69</sup> Some twenty years later these issues still bothered them: "The glass walls behind radiators are unacceptable in view of cleaning."<sup>70</sup> But beginning in the 1960s their attention was broadened to include the activities of all possible residents.

Despite these changes, the VACs consistently maintained the position that women had more daily experience in living. Although they never pre-

67. L. van Vianen-Ort, "Praten over een witte vlek," *VAC-Nieuws*, August/September 1973, 2–5. See also "Wat doet de VAC" (n. 33 above), 11.

68. These checklists were recently updated and integrated in a new handbook for VAC women: VAC, *VAC-Kwaliteitswijzer* (n. 54 above). This now contains in an integrated form general technical analyses and accompanying concrete checklists for three domains: the city, the building, the home.

69. Rotterdam municipal archives, Vrouwen Advies Commissie, Box 2, minutes of a meeting of VAC-Rotterdam, 15 December 1955, 4–5.

70. VAC-Amersfoort, "Van de V.A.C.'s," *VAC-Nieuws*, September/October 1972, 3.

sented themselves as feminists—sometimes even stressed that they were not feminists or action groups—they regularly made use of gendered dichotomies in describing the usefulness and content of their activities.<sup>71</sup> They saw that the building world was a man's world that women would have to break into, constantly justifying their contribution and trying to maintain acquired positions. They often attributed contrasting approaches to men and women: men worked from abstract theory while women thought practically; men built with their heads, women with their hearts; men used expert knowledge, women common sense and practical knowledge; men stressed aesthetics and fashion, while women focused on functionality and efficiency.<sup>72</sup>

The position of the advisory committees has gradually strengthened since their establishment. Their number has grown, their funding stabilized, commissioners and architects have publicly praised their recommendations. They received a national prize for their work in 1987, and international recognition in 1995.<sup>73</sup> Nevertheless, VAC women still comment that

71. We have already identified this distancing from being feminist as an effective element in the "double inclusion" strategy. We do not want to claim, however, that this was all conscious strategy. On the contrary, their reservations toward feminism were no doubt caused by their social background. The VAC women typically had connections to organizations for traditional housewives and rural women, which aimed at the personal development of individual women rather than at the political emancipation of women as a group. Ironically, a break with this background occurred when the national association received enough funding from the ministry of housing to begin a process of professionalization. This new professionalism, focusing on delivering "a good product" (comments and advice on plans), proved an effective strategy for reconciling the pacifying strategies of the bourgeois women with the political thrust of new feminism. This trend was strengthened in 1993 with the appointment of a new director with a background in "autonomous feminism" who had been an active member of *Dolle Mina* and *Wij Vrouwen Eisen*. Her appointment produced the reaction "hey, at last no doctor's wife!" Van der Krabben and Hilhorst interview (n. 43 above).

72. We have distilled these dichotomies mainly from the large number of reports about VAC projects in *VAC-Nieuws*: see, for example, "Zijn architecten en binnenhuisarchitecten vrouwenhaters?" *VAC-Nieuws*, September 1971, 6; H. P. C. Dorhout-van't Land, "VAC Zwolle officieel geïnstalleerd," *VAC-Nieuws*, February 1981, 13. In our interviews VAC women used these as well. See also Meinsma (n. 34 above), 20–21; "Stemmen uit de praktijk van het wonen" (n. 40 above), 1–2; W. J. Groenewegen-Theunisse to W. Nauta-Van der Windt, 4 October 1966, LCVAC archives, Folder "Correspondentie 1962–1968 met provincies/ Utrecht"; Stencil no. 10 (n. 64 above). The last dichotomy is interestingly ironic. In many situations, aesthetics and fashion are associated with femininity while functionality and efficiency are considered masculine values, as for example in the case of J. J. P. Oud. The VACs' playing these cards in opposite ways forms an important part of their strategy.

73. A. M. v. Eyck and L. Samson (N. 47 above); *VAC-Nieuws* 1987, extra edition, "Uitreiking van de Eurowoningenprijs 1987." The VACs were recognized at the United Nations Conference on Human Settlements, "Habitat 2," in Istanbul, 3–14 June 1996; see E. Galama, "'Best Practice' from The Women's Advisory Committees on Housing in the Netherlands," report by VAC-Terneuzen for the United Nations Conference on Human Settlements, 1996, copy in authors' possession.

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they feel themselves unwelcome outsiders, that nobody is waiting for their recommendations, and that they are often confronted with sneering remarks.<sup>74</sup> Architects normally have no problem changing the swing-direction of doors, or modifying bathroom plans, or adding a skylight. But they do not like to redesign a kitchen plan, or decrease the size or number of windows, or add a hallway between living room and garden.<sup>75</sup> Architects sometimes view the practical advice of the VACs as traditional, conservative, and in conflict with their creative work.<sup>76</sup> Therefore, the committees constantly underline the need to operate carefully and to maintain good working relationships with architects and other groups in the building world. Continuity is central to their deliberations. Although the VAC women use gendered dichotomies in speaking about their work, both to others and among themselves, they try to cover up these dichotomies in their contacts with commissioners, architects, and contractors. We call this cautiousness a "peacekeeping strategy," one that has stayed remarkably constant over time and secured the VACs a relatively stable position in the building world. This strategy is maintained by their internal guidelines and fuelled by aphorisms in the *VAC-Nieuws*.<sup>77</sup> Not surprisingly, given the mid-

74. LCVAC, *Jaarverslag 1974*, 1, LCVAC archives; C. Burger, VAC-Dwingeloo, "Van de VAC's," *VAC-Nieuws*, August/September 1984, 17.

75. J. Weenink-v.d. Brakel, VAC-Helmond, "Reacties op verslagen," *VAC-Nieuws*, June 1986, 2–3.

76. "VAC's presenteerden zich aan de bouwwereld," *VAC-Nieuws*, January 1991, 5–9.

77. Some of these internal guidelines are: ask for funding only after having achieved results, and do not criticize others in public before having demonstrated an ability to do useful work; do not talk about "claiming" but about "bringing to notice"; start with praise and a low profile—first mention minor points, which break the ice; try to understand the way other parties think—for instance, consider the difficulties and constraints of architects; do not act pedantically; only utter positive criticism, do not act like negative action-groups; present advice as being practical; try to bring about improvements for women, but do not act as feminists; make use of informal occasions to get in touch with civil servants; give good advice, so as to be taken seriously; knowledge will impress commissioners and designers; meet commitments, although VAC work is volunteer work—it is hard to get a good reputation, but this reputation is easily lost if VAC women do their work too slowly or if their work is of poor quality; do not attribute success too pointedly to the VACs—architects do not like to be corrected, and continuing contacts with builders are more important than a public victory. See "Stemmen uit de praktijk van het wonen," 2; Kolk (n. 64 above), 26–27; Groenewegen-Theunisse to Nauta-Van der Windt; LCVAC, "Richtlijnen voor de Vrouwenadviescommissies voor de Woningbouw," 1966, LCVAC archives; "Wat doet de VAC" (n. 33 above), 10; Burger; Hutjes (n. 33 above), 17; Meinsma (n. 34 above), 132, 142; A. van Zoest, "In gesprek met . . . Anneke Piersma," *VAC-Nieuws*, September 1992, 9; LCVAC, *VAC-Map* (n. 33 above), 17. Some examples of aphorisms published in the *VAC-Nieuws* are: *Raad is als sneeuw; hoe zachter ze valt, hoe beter ze pakt* (Advice is like snow; the softer it is, the better it sticks), February 1980, 16; *Streven naar het volmaakte, tevreden zijn met het bereikte* (Aim at the perfect, be satisfied with the realized), August/September 1980, 28; "Gebruik zachte woorden, maar harde argumenten" (Use soft words, but hard arguments), February 1983, 16; *De gestadige drop holt*

dle-class background of most VAC women, the strategies of the VAC women resemble the “pacifying” strategies that, according to Lijphart, elite members of the groups that made up the pillars of postwar Dutch society used to get along with one another.<sup>78</sup> Although ideological differences between those groups ran deep, political stability was achieved through cooperation guided by such strategies as: be factual, stress the concrete, depoliticize, prevent painful defeats for all parties.

One of the implications of this strategy is that VACs typically do not beat the drum over their own successes. The result counts, not their authorship. Consequently the advisory committees sometimes lack visibility even among those for whom they want to speak.<sup>79</sup> But apart from its visibility the very notion of success becomes ambiguous. The VACs themselves present their successes in a gender-specific way, associating men with quantity and women with quality. According to the VACs, men like to hear about concrete results “expressed in figures and percentages,” while (VAC) women are content with small improvements in housing designs.<sup>80</sup>

### Paradoxical Success

In this article we have traced the history of the Vrouwen Adviescommissies voor de Woningbouw as a successful and intriguing effort by women to shape technology and society. Besides this empirical goal, we also wanted to address several more theoretical issues.

The advisory committees present us with two intriguing paradoxes: the paradox of unknown success and the paradox of nonfeminist women’s action. The first appears when we note that the VACs are generally considered successful but are at the same time rather unknown to the general public. The second is a paradox of gender identity: how did the committees combine a strong emphasis on their experience as women with a public denunciation of feminism?

The VACs seem to have developed a form of “peacetime participation” that combines the possibility of substantial involvement with a continued

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*zelfs de hardste steen uit* (A steady drop will make the hardest stone hollow), March 1983, 10; *Compromis: een regeling die geen der partijen bevredigt* (Compromise: an outcome which satisfies no party), April 1983, 16.

78. A. Lijphart, *Verzuiling, pacificatie en kentering in de Nederlandse politiek* (Amsterdam, 1967).

79. Littie Diederer and Yvonne van der Elsen wrote a brochure for women in areas undergoing urban renewal, with suggestions “as to how women may become stronger to realize their goals [in housing],” but evidently they are not aware of the existence of something like a VAC in Amsterdam. L. Diederer and Y. v. d. Elsen, *Zoiets maak je toch niet, ik zeg altijd, dat doen mannen... Ervaringen van vrouwen in de stadsvernieuwing* (Amsterdam, 1983).

80. “Stemmen uit de praktijk” (n. 40 above), 2.

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critical stance. With our constructivist analysis we have tried to make sense of this peacetime participation in terms of the committees' strategy of combining two vocabularies and two degrees of inclusion in specific networks—feminism and the male building world. This analysis suggests that there is a way out of the "trap of inclusion" dilemma: that although inclusion is necessary for participation, it also implies acceptance and thus an uncritical stance.<sup>81</sup>

More generally, it seems that the extent to which women gain access to an initially male-dominated technology, such as architecture, may be related to the way this technology is associated with specific norms and values. In the case of the VACs this probably is the notion of "functionality" (masculine to the architects, feminine to the housewives). The public character of housing in the Netherlands, which made interest in housing politically important and an expression of social commitment, may also have facilitated the entrance of women into the process.<sup>82</sup> When this is combined with the overall Dutch political culture, which promotes consultation, an important condition for inclusion within the architects' technological frame seems to be fulfilled. We thus maintain that models of democratic control cannot be separated from specific political cultures or from the specific technology (and associated norms and values) concerned. In the VAC case, for example, the peacekeeping strategy employed by the VAC women related both to the Dutch political culture of the 1950s and to the middle class background of the women.

This can all be summarized in our solution to the two paradoxes. The VACs have been successful because they kept a low profile. Rather than boasting about past successes, they preferred to invest in future negotiations with male architects and builders. Their gender identity has two faces, one external and public, the other internal and private. The external identity developed historically from housewives to women to house consumers—all explicitly nonfeminist. The internal identity, however, developed during the 1980s and 1990s into a much more explicitly feminist style. This way of dealing with the paradox of nonfeminist women's action allowed the VACs to create a composite gender identity that fitted their peacekeeping strategy.

In our introduction to this paper we raised the issue of combining an analysis of conscious strategies to shape technology and society with a primarily process-oriented constructivist perspective on technology and society. We think that our analysis of VAC history has shown the possibilities and restrictions of such conscious strategies. The constructivist perspective

81. The phrase "trap of inclusion" was coined by Willem Halffman, "Technology Versus Democracy? The Failure of Constructivist Recipes for the Dilemmas of Environmental Determinism," 1996, copy in authors' possession.

82. See Fassbinder (n. 10 above).

on technology and society does not need to imply a primarily actor-oriented (let alone conspiratorial) model, however wrongly some readers may have interpreted this in the past. But neither does it preclude the possibility of giving conscious strategies (conspiratorial or not) their deserved place in the analysis. The specific interplay of consensus-oriented political culture in the Netherlands and VAC strategies to create a high-inclusion position in the building world is a case in which strategies and wider societal processes worked in the same direction. The later phase, in the 1970s, when the VACs consciously refused to take the oppositional turn although Dutch society was then developing a more adversarial political culture, provides an opposite example. In both cases the explanatory framework of micropolitical strategies and a semiotic power structure have been helpful.